REMARKS

This is in response to the Office Action mailed on April 1, 2005, and the document cited therewith. Claims 3, 5, 7, 11 and 23 are canceled without prejudice to their prosecution in a continuation or divisional application. As a result, claims 2, 4, 6, 8-10 and 22 are now pending in this application.

Claims 2, 9 and 22 are amended. In particular, the subject matter of claims 5, 7 and 11 has been incorporated into claim 2. In view of the changes to claim 2, the term "peptide" has been added to claim 9 to clarify the language therein. The subject matter of claims 5 and 7 has been incorporated into claim 22. In addition, the term MHC I has been amended to MHC I "or II" in claims 2 and 22. Support for presentation of the antigen or part thereof on the surface of cells by a class I or II MHC molecules is found throughout the specification, for example, at page 9, lines 15-20, at page 10, lines 14-28.

Applicant submits that these changes have added no new matter to the application.

§112 Rejections of the Claims

Enablement

Claims 2-11, 22 and 23 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly lacking enablement. Specifically, the Examiner alleges that the specification only enables use of antigen presenting cells and certain types of photosensitizing agents in the practice of the claimed method.

The test for enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 U.S.P.Q. 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987).

Claims 3, 5, 7, 11 and 23 have been cancelled without prejudice to their prosecution in a continuation or divisional application. Claims 2 and 22 are now directed to a method of expressing an antigenic peptide on the surface of a cell involving the steps described above, wherein the photosensitizing agent is selected from the group consisting of a porphyrin, phthalocyanine, purpurin, chlorin, benzoporphyrin, naphthalocyanine, cationic dye, tetracycline, and a lysosomotropic weak base. In addition, claim 2 is directed to a method of expressing an

antigenic peptide on the surface of a cell wherein presentation of the antigenic peptide, or part thereof, on the surface of said cell results in stimulation of an immune response. While claim 22 does not contain this phrase, it explicitly clarifies that the antigenic peptide is expressed "on the surface of a cell capable of antigen presentation." Applicant submits that the subject matter of claims 2 and 22 is commensurate with the scope and disclosure of the specification and that the rejection of the claims for lack of enablement should be withdrawn, as explained in more detail below.

With regard to the photosensitizing agents, Applicant submits that the specification fully enables use of the claimed photosensitizing agents because one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled (see, e.g., page 12, lines 11-34) with information available in the art without undue experimentation. Therefore, Applicant requests withdrawal of this rejection with respect to the photosensitizing agents.

Applicant further submits that the specification fully enables expression of an antigenic peptide on a wide breadth of cell types and is somewhat confused by the Examiner's assertion that only certain cell types can stimulate an immune response. If the Examiner is asserting that non-self antigens displayed on cells of the body and, for example, derived from an infecting bacterial cell would not stimulate an immune response, such an assertion is contrary to established scientific doctrine. Applicant reminds the Examiner that *any* cell type can stimulate an immune response so long as the cell presents antigens recognized by the immune system. This is clear from the Janeway document (see, for example, Figure 7.1), which refers to antigen presentation on infected cells and the development of cytotoxic T cell responses to those cells. Janeway teaches presentation on professional antigen presenting cells for priming naive cells, but recognizes that those T cells, once primed, will respond to antigen presented on any cell (see the passage preceding section 7.1).

Moreover, if the Examiner has decided to re-define the commonly understood meaning of "an immune response" to involve only "costimulation that can only be provided by B cells, macrophages, or dendritic cells" (Office Action at page 2), such a definition of immune response is contrary to what one of ordinary skill in the art would understand from the term "immune response." Such definition is also contrary to the definition of immune response explicitly

provided in the present specification. Thus, the specification at page 9, lines 6-14, explicitly states that the invention is directed to stimulation of any aspect of an immune response:

> [I]ncluding both humoral and cell-mediated immunity, for example the stimulation of antibody production, or the stimulation of cytotoxic or killer cells, which may recognize and destroy (or otherwise eliminate) cells expressing 'foreign' antigens on their surface. The term 'stimulating an immune response' thus includes all types of immune responses and mechanisms for stimulating them.

Applicant respectfully requests that the Examiner accept the commonly understood meaning of "an immune response," i.e., that set forth in the specification.

The Examiner has cited Janeway et al. (1994) as evidence that "only certain antigen presenting cells are capable of presenting antigens and generating an immune response" (Office Action at page 2). However, Janeway is limited to a discussion of T-cell mediated immunity and provides no definition of what a general "immune response" may be. The present claims are not limited to generating "T-cell mediated immunity." Therefore, Applicant submits that Janeway is irrelevant and requests that the Examiner recognize that any cell presenting a foreign antigen can stimulate an immune response.

Applicant further submits that the specification enables expression of antigenic peptides on a variety of cell types and that the invention can be practiced with cells other than just the B cells, macrophages and dendritic cells that the Examiner has stated are enabled. For example, Example 2 shows that a peptide antigen is presented on melanoma cells and leads to cytotoxic T cell immune response. Hence, *inter alia* cancer cells including melanoma cells are enabled. Moreover, claim 6 further defines the types of cells that may be used in the methods of the invention and is clearly enabled as described in the specification at page 9, lines 21-25 and in the Examples. Thus, restriction of the claims to just B cells, macrophages and dendritic cells is not warranted.

Withdrawal of this rejection of claims 2-11, 22 and 23 under 35 U.S.C. § 112, first paragraph is respectfully requested.

Written Description

Claim 7 was rejected under 35 U.S.C. § 112, first paragraph, as allegedly lacking written description. The Examiner alleges that Applicant was not in possession of a "lysomotropic weak base thereof" of a porphyrin, phthalocyanine, purpurin, chlorin, benzoporphyrin, naphthalocyanine, cationic dye, tetracycline at the time of filing. This rejection is respectfully traversed.

To satisfy the written description requirement, Applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he was in possession of the invention, and that the invention, in that context, is whatever is now claimed. *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555 (Fed. Cir. 1991), and see M.P.E.P. § 2163.02.

The subject matter of Claim 7 has been incorporated into claims 2 and 22, with deletion of the term "thereof." Thus, claims 2 and 22 are directed to particular well-defined photosensitizing agents selected from the group consisting of a porphyrin, phthalocyanine, purpurin, chlorin, benzoporphyrin, naphthalocyanine, cationic dye, tetracycline, and a lysosomatropic weak base.

Applicant submits that the phrase "a lysomotropic weak base" is a well-understood term of art that has been used widely in scientific publications for at least twenty-three years. See, for example, Helenius, A. et al., *J. Gen Virol.* **1982**, *58 Pt.1*, 47-61; Styrt, B., et al., *Blood* **1986**, *67*, 334-42; Zdolsek, J.M. et al., *Photochem. Photobiol.* **1990**, *51*, 67-76; and Antunes, F. et al., *Biochem. J.* **2001**, 356, 549-555. Copies of these documents were provided previously for the convenience of the Examiner. Thus, those skilled in the art clearly would understand that the inventors were in possession of the invention as of the filing date of the application.

Applicant submits that one of skill in the art would understand that the inventors were in possession of lysosomatropic weak bases at the time of filing the present application and requests withdrawal of this rejection of claim 7 under 35 U.S.C. § 112, first paragraph.

§102 Rejection of the Claims

Claims 1-10 and 23 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by PCT Application Publication No. WO96/07432 by Berg. The Examiner alleges that WO96/07432 teaches a method of expressing an antigenic molecule on the surface of a viable

cancer cell and while WO96/07432 does not expressly state that surface expression occurs, the Examiner alleges that cell surface expression would inherently result from the method steps employed.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989). To constitute anticipation, the claimed subject matter must be identically disclosed in the prior art. *In re Arkley*, 172 U.S.P.Q. 524 at 526 (C.C.P.A. 1972). For anticipation, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the art. *Scripps Clinic & Res. Found. v. Genentech, Inc.*, 927 F.2d 1565, 18 USPQ2d 101 (Fed. Cir. 1991). To overcome the defense of anticipation, "it is only necessary for the patentee to show some tangible difference between the invention and the prior art." *Del Mar Engineering Lab v. Physio-Tronics, Inc.*, 642 F.2d 1167, 1172, (9th Cir. 1981).

Moreover, an anticipation rejection that is based on inherency must be supported by factual and technical grounds establishing that the inherent feature must flow as a necessary conclusion, not simply a possible conclusion, from the teaching of the cited art. *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Int. 1990); *In re Oelrich*, 666 F.2d 578, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981).

Claims 3, 5, 7 and 23 have been cancelled without prejudice to their prosecution in a continuation or divisional application. Claim 2 is now directed to a method of expressing an antigenic peptide on the surface of a cell involving the steps described above, wherein presentation of the antigenic peptide, or part thereof, on the surface of said cell results in stimulation of an immune response; and wherein the photosensitizing agent is as defined above.

WO96/07432 discloses transfer of molecules into the cytosol of cells so that "the molecules shall be available in the cytosol and the cell shall maintain its functionality." See WO96/07432 at page 2, lines 32-33. WO96/07432 contemplates delivering cytotoxins and DNA molecules to the cytosol of the cell. See WO96/07432 at page 7, lines 4-31.

Applicant submits that WO96/07432 does not disclose presentation of a peptide antigen on the surface of a cell wherein such presentation results in the stimulation of an immune response. WO96/07432 provides no disclosure that stimulation of an immune response can or should take place. Instead, WO96/07432 contemplates killing cells with cytotoxins or modifying the genetic make-up of a cell. Applicant notes that the Examiner did not reject claim 11, which depends from claim 2 and is directed to antigenic presentation that results in the stimulation of an immune response. Accordingly, the subject matter of claim 11 is novel and non-obvious in view of the prior art. The subject matter of claim 11 has been incorporated into claim 2. Therefore, because claim 2 is directed to stimulating an immune response and WO96/07432 provides no disclosure that such an immune response can or should take place, no anticipation of the present claims by WO96/07432 can be found.

Moreover, to the extent that the Examiner is alleging inherent anticipation, Applicant reminds the Examiner that an anticipation rejection that is based on inherency must be supported by factual and technical grounds establishing that the inherent feature must flow as a necessary conclusion, not simply a possible conclusion, from the teaching of the cited art. Applicant submits that WO96/07432 does not provide factual grounds establishing that antigen presentation and stimulation of an immune response necessarily occurs because WO96/07432 contemplates using cytotoxins and other molecules that may not be antigenic, may not be displayed on the cell surface and may not result in an immune response. Hence, no inherent anticipation can be found because one of skill in the art would not conclude that WO96/07432 necessarily teaches stimulation of an immune response.

Applicant requests withdrawal of this rejection of claims 1-10 and 23 under 35 U.S.C. § 102(b).

Conclusion

Applicants respectfully submit that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicants' attorney at (516) 795-6820 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date September 1, 2005 By _____
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 1st day of September, 2005.

PATRICIA A. HULTMAN

Name

Signature